

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: movie of 2D color-coded Ca²⁺ spontaneous oscillation in the SAM expressing R-GECO1 as in Fig. 3a.

File Name: Supplementary Movie 2

Description: movie of 2D color-coded Ca²⁺ spontaneous oscillation in the SAM that shows different initiation sites over time. Plasma membrane signal was labeled as green color.

File Name: Supplementary Movie 3

Description: movie of 2D color-coded Ca²⁺ spontaneous oscillation in the SAM from the intact plant expressing R-GECO1.

File Name: Supplementary Movie 4

Description: Spikes predicted by GCaMP6f in the Arabidopsis SAM. Close-up view from above of a confocal projection of the Arabidopsis SAM comprising of 33 Z-stacks showing spikes predicted by GCaMP6f calcium sensor. Each stack comprises of 13 optical slices recorded over a period of 2.126 minutes with a scan rate of 1 stack per 3.2 seconds and 1 optical slice per 0.3 seconds. Scale bar, 20µm.

File Name: Supplementary Movie 5

Description: movie of 2D color-coded Ca²⁺ spontaneous signals in the SAM expressing R-GECO1 during 0.5M LaCl₃ treatment.

File Name: Supplementary Movie 6

Description: movie of 2D color-coded Ca²⁺ spontaneous signals in the SAM expressing R-GECO1 during 0.2M BAPTA treatment.

File Name: Supplementary Movie 7

Description: movie of Ca²⁺ wave during mechanical perturbation through a pipette in the same SAM expressing R-GECO1 as in Fig. 3c-f.

File Name: Supplementary Movie 8

Description: Calcium wave response induced upon laser induced cellular ablation in the Arabidopsis SAM. A transverse optical section of the SAM showing a calcium wave predicted by GCaMP6f (green) upon laser induced cellular ablation, originating from the site of ablation in the center of the optical section.

File Name: Supplementary Movie 9

Description: movie of Ca²⁺ signal responses to non-injurious mechanical perturbations (pipette withdrawal) in the same SAM expressing R-GECO1 as in Supplementary Fig. 11a-d.

File Name: Supplementary Movie 10

Description: movie of Ca²⁺ signal responses to non-injurious mechanical perturbations (pressing and releasing) in the same SAM expressing R-GECO1 as in Supplementary Fig. 11e-h.

File Name: Supplementary Movie 11

Description: movie of Ca^{2+} signal recovery at 3 h after mechanical stimulation through a pipette to SAMs pretreated with 5mM LaCl_3 for 15min in the same SAM expressing RGECO1 as in Supplementary Fig. 12a-e.

File Name: Supplementary Movie 12

Description: movie of Ca^{2+} signal recovery at 3 h after mechanical stimulation through a pipette to SAMs pretreated with 2mM BAPTA for 10min in the same SAM expressing R-GECO1 as in Supplementary Fig. 12f-j.